

## Patent claims

1. An air-conditioning system for vehicles,
- with a blower for generating an air stream,
  - 5 • with an evaporator which is arranged downstream of the blower and through which the air stream flows,
  - with a mixing flap following the evaporator,
    - the air stream being apportionable by means of the mixing flap to a first flow duct and/or a
    - 10 second flow duct, with the result that a first and/or a second part air stream can be generated,
    - the first flow duct (cold-air duct) issuing into a mixing chamber,
    - 15 • while a heat exchanger for warming the second part air stream is arranged in the second flow duct (warm-air duct) and the second flow duct issues, downstream of the heat exchanger, into the mixing chamber,
    - 20 • a mixed air stream being capable of being generated from the first and the second part air stream in the mixing chamber, air outlet ducts leading from the mixing chamber into different regions of the vehicle interior,
    - 25 • and the mixing flap being pivotable about an axis of rotation between a first end position, in which it completely closes the first flow duct, and a second end position, in which it completely closes the second flow duct, and, in the intermediate
    - 30 positions, allowing a direct passage of cold air from the first flow duct into the second flow duct,

characterized in that

- the mixing flap for apportioning the air stream
- 35 consists of at least three sections and the axis of rotation lies outside these sections, a first section being arranged in the radial direction or at least at an acute angle to the radial direction with respect to

the axis of rotation, a second section being arranged concavely with respect to the axis of rotation, and a third section being arranged in the radial direction or at least at an acute angle to the radial direction with respect to the axis of rotation, in such a way that the first and the third section adjoin opposite ends of the second section so that the three sections form a wall region with a continuous contour.

10 2. The air-conditioning system as claimed in claim 1, characterized in that the mixing flap has, in cross section with respect to the axial direction, a contour which is constant over the entire length of the mixing flap.

15 3. The air-conditioning system as claimed in one of the preceding claims, characterized in that the sections of the wall region of the mixing flap merge continuously one into the other.

20 4. The air-conditioning system as claimed in one of the preceding claims, characterized in that the air-conditioning system has a mixing flap with a wall region, one end of a section of the wall region forming a stop.

25 5. The air-conditioning system as claimed in one of the preceding claims, characterized in that the air-conditioning system has a mixing flap with a wall region, two opposite ends of two sections of the wall region in each case forming a stop.

30 6. The air-conditioning system as claimed in one of the preceding claims, characterized in that the air-conditioning system has a mixing flap with a wall region, one section or two sections of the wall region having sealing regions in the region of the stop surfaces.

7. The air-conditioning system as claimed in one of the preceding claims, characterized in that the mixing flap has a wall region which is continuous in its entire surface.

8. The air-conditioning system as claimed in one of the preceding claims, characterized in that the wall region of the mixing flap is designed at least partially circularly or in the form of a segment of a circle.

9. The air-conditioning system as claimed in one of the preceding claims, characterized in that the wall region of the mixing flap is designed at least partially in an elliptic, parabolic, hyperbolic or another continuously curved shape.

10. The air-conditioning system as claimed in one of the preceding claims, characterized in that the mixing flap is articulated on the pivot axis via pivoting arms which widen in the form of a segment of a circle and are preferably also arranged at the edge.